

# इंटरनेट

# मानक

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IS 6795 (2007): Acacia (Arabic) Gum, Food Grade [FAD 8: Food Additives]



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भारतीय मानक  
एकैशिया (अरेबिक) गम, खाद्य ग्रेड — विशिष्टि  
( पहला पुनरीक्षण )

*Indian Standard*  
ACACIA (ARABIC) GUM, FOOD GRADE —  
SPECIFICATION  
( *First Revision* )

ICS 67.220.20

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

## FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Food Additives Sectional Committee had been approved by the Food and Agriculture Division Council.

With the increased production of processed foods, manufacturers have started adding a large number of substances, generally in small quantities, to improve the appearance, flavour, texture or storage properties of the processed foods. As impurities in these substances have been found to be harmful, it is necessary to have a strict quality control of these food additives. Use of gums as thickening agent and stabilizer has been permitted under the *Prevention of Food Adulteration Rules, 1955* for certain foods. This standard on acacia (arabic) gum would help in checking purity which requires to be checked at the stage of manufacture, for it is extremely difficult (and in many cases impossible) to detect the impurity once these substances are added to the processed foods.

This standard was first published in 1972 based on the then existing 'Specification for identity and purity of food additives' published by FAO and WHO and the Food Chemical Codex of USA. This standard is being revised taking into consideration the latest publication for Acacia Gum issued by JECFA. In this revision the limits for heavy metal contaminants have been made more stringent, microbiological requirements has been included to align with the international requirements and methods of test have been revised and updated.

Due consideration has also been given to the *Prevention of Food Adulteration Rules, 1955* and *Standard of Weights & Measures (Packaged Commodities) Rules, 1977*. However, this standard is subject to restrictions imposed under these, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

# Indian Standard

## ACACIA (ARABIC) GUM, FOOD GRADE — SPECIFICATION

### ( First Revision )

#### 1 SCOPE

This standard prescribes requirements and methods of sampling and test for acacia (arabic) gum, food grade.

#### 2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	Title
1070 : 1992	Reagent grade water ( <i>third revision</i> )
1699 : 1995	Methods of sampling and test for food colours ( <i>second revision</i> )
2491 : 1998	Food hygiene — General principles — Code of practice ( <i>second revision</i> )
5887	Methods for detection of bacteria responsible for food poisoning:
(Part 1) : 1976	Isolation, identification and enumeration of <i>Escherichia coli</i> ( <i>first revision</i> )
(Part 3) : 1999	General guidance on methods for detection of <i>Salmonella</i> ( <i>second revision</i> )
7238 : 1997	Tragacanth gum, food grade — Specification ( <i>first revision</i> )

#### 3 DESCRIPTION

##### 3.1 Definition

Acacia gum shall be a dried gummy exudation obtained from the stems and branches of *Acacia senegal* (L) Wild, *Acacia seyal* (L) Wild, or of related species of *Acacia* (Fam. *Leguminosae*). Acacia gum consists chiefly of a high molecular weight polysaccharides and their calcium, potassium and magnesium salts which on hydrolysis yield arabinose, galactose, rhamnose and glucuronic acid. Items of commerce may contain extraneous matter like pieces of bark which shall be removed before use in foods.

3.2 Acacia gum (*A. senegal*) is a pale white to orange-brown solid, which breaks with a glassy fracture. The best grades are in the form of whole, spheroidal tears of varying sizes with a matt surface texture. When ground the pieces are paler and have a glassy appearance.

3.2.1 Acacia gum (*A. seyal*) is more brittle than the hard tears of acacia gum (*A. senegal*).

3.2.2 Acacia gum is also available in the form of white to yellowish-white flakes, granules, powder, roller dried or spray dried material.

#### 4 REQUIREMENTS

##### 4.1 Solubility

One gram of the gum dissolves in 2 ml of water forming a solution which flows readily and is acid to litmus. It is insoluble in ethanol.

##### 4.2 Identification

###### 4.2.1 Optical Rotation

Test a solution of 10 g of sample (dry basis) in 100 ml of water (if necessary, previously filtered through a No. 42 paper or a 0.8 µm milipore filter), using a 200-mm tube.

Gum from *A. senegal* : aqueous solutions are levorotatory

Gum from *A. seyal* : aqueous solutions are dextrorotatory

###### 4.2.2 Gum Constituents

Using the method given in Annex A of IS 7238, identify arabinose, galactose, rhamnose and glucuronic acid shall be present on the chromatogram. Additional spots corresponding to mannose, xylose and galactouronic acid shall be absent.

4.3 The product shall also conform to the requirements given in Table 1.

4.4 The product shall be processed, packed, stored and distributed under hygienic conditions in licenced premises (*see* IS 2491).

#### 5 PACKING, STORAGE AND MARKING

##### 5.1 Packing

The product shall be securely packed in well-filled

Table 1 Requirements for Acacia Gum

(Clause 4.3)

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Annex of this Standard	Clause of Other Indian Standard
(1)	(2)	(3)	(4)	(5)
i)	Loss on drying, percent by mass, <i>Max</i> :			
	a) Granular material	15	A	—
	b) Spray dried material	10		
ii)	Total ash, percent by mass, <i>Max</i>	4	B	—
iii)	Acid insoluble ash, percent by mass, <i>Max</i>	0.5	C	—
iv)	Insoluble matter, percent by mass, <i>Max</i>	1	D	—
v)	Starch and dextrins	To pass the test	E	—
vi)	Tannin-bearing gums	To pass the test	F	—
vii)	Arsenic (as As), mg/kg, <i>Max</i>	3	—	15 of IS 1699
viii)	Lead (as Pb), mg/kg, <i>Max</i>	2	—	15 of IS 1699
ix)	<i>Salmonella</i> per g, <i>Max</i>	Negative	—	IS 5887 (Part 3)
x)	<i>Escherichia coli</i> per g, <i>Max</i>	Negative	—	IS 5887 (Part 1)

containers with minimum access to light and moisture. The containers shall be such as to preclude contamination of the contents with metals or other impurities.

## 5.2 Storage

The product shall be stored in a cool and dry place so as to avoid excessive exposure to heat.

## 5.3 Marking

Each container shall be legibly and indelibly marked with the following information:

- Name of the material;
- Name and address of the manufacturer;
- Batch or Code number;
- Net content when packed;
- Instruction for storage to include 'Store away from direct sunlight and heat';
- Best before date (Month and Year to be given by the manufacturer); and
- Any other requirements as given under the *Standards of Weights and Measures*

(Packaged Commodities) Rules, 1977 and Prevention of Food Adulteration Act, 1955 and Rules.

### 5.3.1 BIS Certification Marking

The product may also be marked with the Standard Mark.

**5.3.1.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## 6 SAMPLING

Representative samples of the material shall be drawn according to the method prescribed in 4 of IS 1699.

## 7 QUALITY OF REAGENTS

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the result of analysis.

**ANNEX A**[Table 1, *Sl No. (i)*]**DETERMINATION OF LOSS ON DRYING****A-1 PROCEDURE**

Weigh accurately about 5 g of the material in a tared weighing bottle. Place the bottle containing the sample (uncovered) in the oven maintained at  $110 \pm 1^\circ\text{C}$

for 4 h. Remove the bottle from oven, close it and allow coming to room temperature in a desiccator and weigh. Calculate the loss on drying as percent by mass.

**ANNEX B**[Table 1, *Sl No. (ii)*]**DETERMINATION OF TOTAL ASH****B-1 PROCEDURE**

Weigh accurately about 3 g of the material in a tared crucible, ignite at about  $550^\circ\text{C}$  not exceeding very dull redness, until free from carbon, cool in a desiccator, and weigh. If a carbon-free ash is not obtained, wet the charred mass with hot water, collect the insoluble residue on an ashless filter paper, and ignite the residue and filter paper until the ash is white or nearly so. Finally,

add the filtrate, evaporate it to dryness, and heat the whole to a dull redness. If a carbon-free ash is still not obtained, cool the crucible, add 15 ml of alcohol, break up the ash with a glass rod, then burn off the alcohol, again heat the whole to a dull redness, cool and weigh. Calculate the percentage of ash from the mass of sample taken.

**ANNEX C**[Table 1, *Sl No. (iii)*]**DETERMINATION OF ACID INSOLUBLE ASH****C-1 PROCEDURE**

Boil the ash obtained in **B-1** with 25 ml of diluted hydrochloric acid for 5 min, collect the insoluble matter on a tared Gooch crucible or ashless filter paper, wash

with hot water, ignite, and weigh. Calculate the percentage of acid insoluble ash from the mass of sample taken.

**ANNEX D**[Table 1, *Sl No. (iv)*]**DETERMINATION OF ACID INSOLUBLE MATTER****D-1 PROCEDURE**

Weigh 4.5-5.5 g of the sample into a 250 ml beaker. Add about 200 ml of hot water ( $80-90^\circ$ ), stir to dissolve, and allow the solution to cool to room temperature. Filter the solution through a tared Grade 4 sintered glass filter

(sintered disk filters for laboratory use) and wash with cold water until the washings are colourless. Dry the filter and residue at  $135^\circ\text{C}$  until a constant weight is obtained. Express the weight of the residue as a percentage of the weight of sample taken.



## ANNEX E

[Table 1, *Sl No.* (v)]

### DETERMINATION OF STARCH AND DEXTRINS

#### E-1 REAGENT

##### E-1.1 Iodine Solution

Dissolve 14 g of iodine in a solution of 36 g of potassium iodide in 100 ml of water, add 3 drops of hydrochloric acid and dilute with water to 1 000 ml.

#### E-2 PROCEDURE

Prepare 0.5 percent aqueous solution of the material, warm it to 40°C and add 2 drops of iodine solution. Where the drops fall a red-violet colour shall appear. On mixing, the solution shall become golden brown and not blue or reddish in colour.

## ANNEX F

[Table 1, *Sl No.* (vi)]

### DETERMINATION OF TANNIN-BEARING GUMS

#### F-1 REAGENT

##### F-1.1 Ferric Chloride — 0.5 N.

Prepare 4.5 percent (*m/v*) solution of ferric chloride in water.

#### F-2 PROCEDURE

To 10 ml of 2 percent solution of the material add about 0.1 ml of ferric chloride. No blackish colouration or blackish precipitate shall form.

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### Amendments Issued Since Publication

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